

Serial No.: 10/065,239
Confirmation No.: 9441
Applicant: TISSLER, Amo *et al.*
Atty. Ref.: 00173.0022.EPUS00

AMENDMENTS TO THE CLAIMS:

Please cancel claims 4 and 35 - 38, amend claims 1, 2, 5 - 11, 19 and 20 and add new claims 40 - 42, as follows:

1. (Currently Amended) A porous material for catalytic conversion of exhaust gases comprising a carrier with a first porous structure ~~and enclosing an oxidation catalyst (OX), consisting essentially of iron (Fe) and silver (Ag), which in the presence of oxygen (O_{sub.2}) and according to a first reaction has the ability to catalyze oxidation of nitrogen monoxide (NO) into nitrogen dioxide (NO_{sub.2}) and, according to a second reaction, to catalyze oxidation of a reducing agent (HC), which oxidation catalyst (OX) is enclosed inside the first porous structure and the oxidation catalyst (OX) comprises iron (Fe) and silver (Ag) loaded on a zeolite, said porous material further comprising: a carrier with a second porous structure having located therein a reduction catalyst (RED) that in the presence of the reducing agent (HC) is able to selectively catalyze reduction of nitrogen dioxide into nitrogen, the second porous structure having dimensions such that the reducing agent (HC) can come into contact with the reduction catalyst (RED) in order to enable a third reaction to take place wherein the reducing agent (HC) participates and is at least partially consumed.~~

2. (Currently Amended) The porous material according to claim 1, wherein the first porous structure ~~further~~ comprises a zeolite with MFI framework type structure.

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3. (Original) The porous material according to claim 2, wherein the oxidation catalyst (OX), due to the iron (Fe) and silver (Ag), is arranged to prevent the reducing agent (HC) from reacting in the oxidation catalyst (OX) or to slow down the reaction of the reducing agent (HC) in the oxidation catalyst (OX) in order to enable primarily the first reaction, out of said first and second reactions, to take place over the oxidation catalyst (OX) during the catalytic conversion of the exhaust gases.

4. (Cancelled)

5. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, wherein the first porous structure on an average exhibits smaller entrances for the reducing agent (HC) than the second porous structure.

6. (Cancelled)

7. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, wherein the first and the second porous structures are provided in different coating layers of the porous material.

8. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, wherein the carrier with the second porous structure has a molecule size and/or adsorption properties of the reducing agent (HC).

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9. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, wherein the ratio between oxidation catalyst (OX) and reduction catalyst (RED) is optimized so that the production of nitrogen dioxide (~~NO_{sub.2}~~), according to the first reaction, essentially corresponds to the consumption of nitrogen dioxide (~~NO_{sub.2}~~) according to the third reaction.

10. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, further comprising: a first portion and a second portion, wherein the first portion is intended to receive the exhaust gases before the second portion during the catalytic conversion, and the first portion contains a larger quantity of the oxidation catalyst (OX) than the second portion, whereas the second portion contains a larger quantity of the reduction catalyst (RED) than the first portion.

11. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, wherein the porous material comprises a second zeolite, providing the second porous structure.

12 - 17. (Cancelled)

18. (Currently Amended) The porous material according to claim 1, ~~claim 4~~, wherein the reducing agent (HC), which is at least partially consumed according to the third reaction, is a hydrocarbon (~~H_{sub.x}C_{sub.y}~~) — (H_xC_y) and a chemical compound (~~H_{sub.x}C_{sub.y}O_{sub.z}S_{sub.w}~~) (H_xC_yO_zS_w) that further comprises oxygen and sulphur.

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19. (Currently Amended) The porous material according to claim 1, ~~claim 2,~~ wherein the second porous structure incorporates the reduction catalyst (RED) as ~~is an acidic zeolite catalyst~~ catalytic sites.

20. (Currently Amended) The porous material according to claim 1, ~~claim 2,~~ wherein the reduction catalyst (RED) comprises at least one of Bronstedt acid sites, silver (Ag), iron (Fe) copper (Cu), Rhodium (Rh), Indium (In), Iridium (Ir), and combinations thereof.

21. (Original) The porous material according to claim 1, wherein the first and the second porous structures are provided in carriers attached to a substrate.

22-39 (Cancelled)

40. (New) The porous material according to claim 5, wherein the entrances of the first porous structure have a size range from about 3.0 angstroms to about 4.5 angstroms.

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41. (New) A porous material for catalytic conversion of exhaust gases, said porous material comprising: a coating layer including a carrier with a first porous structure enclosing an oxidation catalyst (OX) which in the presence of oxygen and according to a first reaction has the ability to catalyze oxidation of nitrogen monoxide into nitrogen dioxide and, according to a second reaction, to catalyze oxidation of a reducing agent (HC), said porous material further comprising: a carrier with a second porous structure provided in the same coating layer as the first porous structure, the second porous structure having located therein a reduction catalyst (RED) that in the presence of the reducing agent (HC) is able to selectively catalyze reduction of nitrogen dioxide into nitrogen, the second porous structure having dimensions such that the reducing agent (HC) can come into contact with the reduction catalyst (RED) in order to enable a third reaction to take place wherein the reducing agent (HC) participates and is at least partially consumed.

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42. (New) A porous material for catalytic conversion of exhaust gases, said porous material comprising: a carrier with a first porous structure comprising a first zeolite enclosing an oxidation catalyst (OX) which in the presence of oxygen and according to a first reaction has the ability to catalyze oxidation of nitrogen monoxide into nitrogen dioxide and, according to a second reaction, to catalyze oxidation of a reducing agent (HC), said porous material further comprising: a carrier with a second porous structure comprising a second zeolite, such that the porous material comprises a physical mixture of the first zeolite and the second zeolite that has located therein a reduction catalyst (RED) that in the presence of the reducing agent (HC) is able to selectively catalyze reduction of nitrogen dioxide into nitrogen, the second porous structure having dimensions such that the reducing agent (HC) can come into contact with the reduction catalyst (RED) in order to enable a third reaction to take place wherein the reducing agent (HC) participates and is at least partially consumed.

43. (New) The porous material according to claim 41 or 42, wherein the first porous structure comprises a zeolite with MFI framework type structure.

44. (New) The porous material according to claim 43, wherein the oxidation catalyst (OX), due to the iron (Fe) and silver (Ag), is arranged to prevent the reducing agent (HC) from reacting in the oxidation catalyst (OX) or to slow down the reaction of the reducing agent (HC) in the oxidation catalyst (OX) in order to enable primarily the first reaction, out of said first and second reactions, to take place over the oxidation catalyst (OX) during the catalytic conversion of the exhaust gases.

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45. (New) The porous material according to claim 41 or 42, wherein the first porous structure on an average exhibits smaller entrances for the reducing agent (HC) than the second porous structure.

46. (New) The porous material according to claim 41 or 42, wherein the first and the second porous structures are provided in different coating layers of the porous material.

47. (New) The porous material according to claim 41 or 42, wherein the carrier with the second porous structure has a molecule size and/or adsorption properties of the reducing agent (HC).

48. (New) The porous material according to claim 41 or 42, wherein the ratio between oxidation catalyst (OX) and reduction catalyst (RED) is optimized so that the production of nitrogen dioxide, according to the first reaction, essentially corresponds to the consumption of nitrogen dioxide according to the third reaction.

49. (New) The porous material according to claim 41 or 42, further comprising: a first portion and a second portion, wherein the first portion is intended to receive the exhaust gases before the second portion during the catalytic conversion, and the first portion contains a larger quantity of the oxidation catalyst (OX) than the second portion, whereas the second portion contains a larger quantity of the reduction catalyst (RED) than the first portion.

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50. (New) The porous material according to claim 41 or 42, wherein the porous material comprises a second zeolite, providing the second porous structure.

51. (New) The porous material according to claim 42, wherein the porous material comprises a layered structure of the first zeolite and the second zeolite, wherein said first and second zeolites, depending on the expected composition of the exhaust gases which are to be catalytically converted, have been arranged in relation to each other in said layered structure, and the second zeolite encounters the exhaust gases before the first zeolite during the catalytic conversion.

52. (New) The porous material according to claim 42, wherein the second zeolite, providing the second porous structure, has been applied by over-growth onto the first zeolite, providing the first porous structure.

53. (New) The porous material according to claim 42, wherein the content of oxidation catalyst (OX) has been reduced in outer layers of the first zeolite by means of regulating penetration depth and dispersion.

54. (New) The porous material according to claim 42, wherein an additional zeolite crystal layer with a reduced content of oxidation catalyst (OX) has been crystallized onto the crystal structure of the first zeolite.

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55. (New) The porous material according to claim 42, wherein the crystal structure of the first zeolite comprises crystal grains having a grain size and a shape which has been optimized both in order to prevent reaction of the reducing agent (HC), and in order to allow effective oxidation of NO to NO₂.

56. (New) The porous material according to claim 41 or 42, wherein the reducing agent (HC), which is at least partially consumed according to the third reaction, is a hydrocarbon (H_xC_y) and a chemical compound (H_xC_yO_zS_w) that further comprises oxygen and sulphur.

57. (New) The porous material according to claim 41 or 42, wherein the second porous structure incorporates the reduction catalyst (RED) as acidic, catalytic sites.

58. (New) The porous material according to claim 41 or 42, wherein the reduction catalyst (RED) comprises at least one of Bronstedt acid sites, silver (Ag), iron (Fe) copper (Cu), Rhodium (Rh), Indium (In), Iridium (Ir), and combinations thereof.

59. (New) The porous material according to claim 41 or 42, wherein the first and the second porous structures are provided in carriers attached to a substrate.

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60. (New) The porous material according to claim 41 or 42, wherein the first porous structure on an average exhibits smaller entrances for the reducing agent (HC) than the second porous structure and the entrances of the first porous structure have a size range from about 3.0 angstroms to about 4.5 angstroms.